Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

Claims 1-4 (Canceled).

5. (Previously Presented) A modified IL-4 mutein receptor antagonist wherein the amino acid residue at position 37, 38, or 104 is cysteine and produced by

a) culturing a host cell comprising an expression vector comprising a polynucleotide sequence as set forth in SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6; and

b) purifying the antagonist from the host cell culture,

wherein the antagonist inhibits IL-4 and IL-13-mediated activity.

6. (Original) The modified IL-4 mutein receptor antagonist of claim 5 coupled to a non-protein polymer selected from the group consisting of polyethylene glycol, polypropylene glycol and polyoxyalkylenes.

7. (Original) The modified IL-4 mutein receptor antagonist of claim 6 wherein the modified mutein receptor antagonist binds to the IL-4 receptor alpha chain with a K_d of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

8. (Original) The modified IL-4 mutein receptor antagonist of claim 6 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of TF-1 cells to IL-4 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

9. (Original) The modified IL-4 mutein receptor antagonist of claim 6 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of TF-1 cells to IL-13 with an

IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

10. (Original) The modified IL-4 mutein receptor antagonist of claim 6 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of human B cells to IL-4 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

11. (Original) The modified IL-4 mutein receptor antagonist of claim 6 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of human T cells to IL-4 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

12. (Original) The modified IL-4 mutein receptor antagonist of claim 6 wherein the modified IL-4 mutein receptor antagonist has a plasma half-life which is at least about 2-10 fold greater than that of an unmodified IL-4 receptor antagonist.

Claims 13-17 (Canceled).

18. (Original) A pharmaceutical composition comprising:

a) the modified IL-4 mutein receptor antagonist of claim 6; and

b) a pharmaceutically acceptable carrier.

Claims 9-21 (Canceled).

22. (Previously Presented) A modified IL-4 mutein receptor antagonist coupled to a non-protein polymer at an amino acid residue at position 37, 38, or 104 of IL-4, wherein the amino acid at 37, 38 or 104 is cysteine, and wherein the non-protein polymer is polyethylene glycol, polypropylene glycol or a polyoxyalkylene.

Claims 23-24 (Canceled).

25. (Previously Presented) The modified IL-4 mutein receptor antagonist of claim 6 or 22 comprising an amino acid sequence as set forth in SEQ ED NO: 12.

26. (Previously Presented) The modified IL-4 mutein receptor antagonist of claim 6 or 22 comprising an amino acid sequence as set forth in SEQ ID NO: 13.

27. (Previously Presented) The modified IL-4 mutein receptor antagonist pf claim 6 or 22 comprising an amino acid sequence as set forth in SEQ ID NO: 14.

Claims 28-29 (Canceled).

30. (Original) The modified IL-4 mutein receptor antagonist of claim 22 wherein the modified mutein receptor antagonist binds to the IL-4 receptor alpha chain with a K_d of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

31. (Original) The modified IL-4 mutein receptor antagonist of claim 22 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of TF-1 cells to IL-4 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

32. (Original) The modified IL-4 mutein receptor antagonist of claim 22 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of TF-1 cells to IL-13 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

33. (Original) The modified IL-4 mutein receptor antagonist of claim 22 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of human B

cells to IL-4 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

34. (Original) The modified IL-4 mutein receptor antagonist of claim 22 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of human T cells to IL-4 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

35. (Original) The modified IL-4 mutein receptor antagonist of claim 22 wherein the modified IL-4 mutein receptor antagonist has a plasma half-life which is at least about 2-10 fold greater than that of an unmodified IL-4 receptor antagonist.

36. (Canceled).

37. (Original) A pharmaceutical composition comprising:

a) the modified IL-4 mutein receptor antagonist of claim 22; and

b) a pharmaceutically acceptable carrier.

Claims 38-42 (Canceled).

43. (Previously Presented) A modified IL-4 mutein receptor antagonist wherein the amino acid at 37, 38 and 104 is cysteine, and produced by

a) culturing a host cell comprising an expression vector comprising a polynucleotide sequence as set forth in SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, wherein the antagonist is expressed;

b) allowing the antagonist to refold in the presence of dithiothreitol; and

c) purifying the antagonist from the host cell culture,

wherein the antagonist inhibits IL-4 and IL-13-mediated activity.

44. (Original) The modified IL-4 mutein receptor antagonist of claim 43 wherein the non-protein polymer is polyethylene glycol, polypropylene glycol or a polyoxyalkylene.

45. (Original) The modified IL-4 mutein receptor antagonist of claim 44 wherein the modified mutein receptor antagonist binds to the IL-4 receptor alpha chain with a K_d of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

46. (Original) The modified IL-4 mutein receptor antagonist of claim 44 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of TF-1 cells to IL-4 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

47. (Original) The modified IL-4 mutein receptor antagonist of claim 44 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of TF-1 cells to IL-13 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

48. (Original) The modified IL-4 mutein receptor antagonist of claim 44 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of human B cells to IL-4 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

49. (Original) The modified IL-4 mutein receptor antagonist of claim 44 wherein the modified IL-4 mutein receptor antagonist inhibits the proliferative response of human T cells to IL-4 with an IC_{50} of about 0.1 nM to about 10 μM, about 0.5 nM to about 1 μM, or about 1.0 nM to about 100 nM.

50. (Original) The modified IL-4 mutein receptor antagonist of claim 44 wherein the modified IL-4 mutein receptor antagonist has a plasma half-life which is at least about 2-10 fold greater than that of an unmodified IL-4 receptor antagonist.

Claims 51-55 (Canceled).

56. (Original) A pharmaceutical composition comprising:

a) the modified IL-4 mutein receptor antagonist of claim 43; and

b) a pharmaceutically acceptable carrier.

Claims 57-62 (Canceled).

63. (Previously Presented) A modified IL-4 mutein receptor antagonist of claim 43, wherein the non-protein polymer is polyethylene glycol, polypropylene glycol or a polyoxyalkylene.

64. (Previously Presented) The modified IL-4 mutein receptor antagonist of claim 43, wherein the non-protein polymer is polyethylene glycol (PEG).